MONTHLY NOTICES

OF THE

ROYAL ASTRONOMICAL SOCIETY.

VOL. LXVI. MAY 11, 1906. No. 7

W. H. MAW, Esq., PRESIDENT, in the Chair.

Edmund Dickson, F.G.S., 2 Starkie Street, Preston, Lancashire;
Jacob Halm, Ph.D., Royal Observatory, Blackford Hill, Edinburgh;
John William Hicks, Ordnance Committee Office, Woolwich;
William Malin Hunt, 48–50, London Road, Nottingham; and
Edwin Baikie Simpson-Baikie, Lieut. R.N.R., 142A The Bluff, Yokohama, Japan,

were balloted for and duly elected Fellows of the Society.

The following candidates were proposed for election as Fellows of the Society, the names of the proposers from personal knowledge being appended :—

Arthur Grant Stillhamer, Yerkes Observatory, Williams Bay, Wisconsin, U.S.A. (proposed by S. W. Burnham);
Ralph Falcon, M.A. Oxon., Barrister-at-Law, Camerton Hall, Workington, Cumberland (proposed by Cecil G. Dolmage).

Sixty-six presents were announced as having been received since the last meeting, including, amongst others :—

Publications of the Astronomical Laboratory, Groningen, Nos. 15, 16 (De Sitter, Photographic Parallax Tables, and

Kapteyn, Trigonometrical Formulæ), presented by the Laboratory; G. W. Hill, Collected Mathematical Works, vol. iii., presented by the Author; Oxford University Observatory, Miscellaneous Papers, vol. ii., presented by the Savilian Professor of Astronomy; Radcliffe Catalogue of Stars for 1900 (A. A. Rambaut), presented by the Radcliffe Trustees; Eighteen Charts of the Astrographic Chart of the Heavens, presented by the Royal Observatory, Greenwich; and Ten Charts presented by the San Fernando Observatory.

On the Ancient Eclipses of the Sun. By E. Nevill.

It was with much interest that I read Mr. Cowell's recent papers on the ancient eclipses of the Sun and the values they indicate for the secular accelerations of the longitudes of the Sun, Moon, and lunar node, and it is with some curiosity that I have waited for the last six months to see if any of the distinguished astronomers conversant with the subject would critically examine the results which Mr. Cowell has deduced.

In the first of these papers (*Monthly Notices*, vol. lxv. p. 861) Mr. Cowell reaches the conclusion that if the Moon's secular acceleration be taken as $+7''{\cdot}0$, in order to represent the ancient eclipses of the Sun it is necessary to reduce to about $+4''{\cdot}4$ the secular acceleration of the Moon's angular distance from its node, corresponding to a reduction of the secular acceleration of the Moon's node to only a third of its theoretical value.

In the second of these papers (*Monthly Notices*, vol. lxvi. p. 3) Mr. Cowell points out that, as this reduction of the Moon's nodical secular acceleration is inconsistent with the theory of gravitation, the requisite value of the secular acceleration of the Moon's angular distance from its node should be obtained by adopting the theoretical value of the secular acceleration of the node and increasing the secular acceleration of the Moon's mean longitude from $+6''{\cdot}8$ to $+10''{\cdot}9$, and ascribing a secular acceleration of $+4''{\cdot}1$ to the mean longitude of the Earth, so as to leave unchanged the epoch of conjunction of the Sun and Moon in mean longitude.

The results deduced in these two papers are quite distinct, and form two questions which may well be examined separately.

The first is the existence of an apparent secular acceleration of $+4''{\cdot}4$ in the angular distance of the Moon from its node.

The records of the ancient eclipses of the Sun and the values they indicate for the secular accelerations of the Moon's mean longitude, longitude of node, and longitude of perigee have been examined in some detail in one of the sections of my unpublished memoir on the errors of the lunar tables, and from it can be derived further information on the subject considered in Mr. Cowell's papers.